Small Business Innovation Research/Small Business Tech Transfer

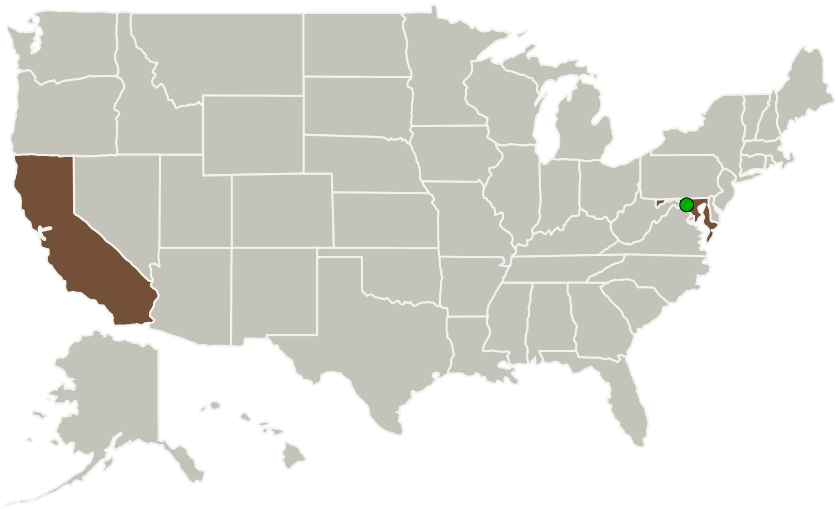
Miniaturized High Performance Optical Gyroscope, Phase I

Completed Technology Project (2014 - 2014)

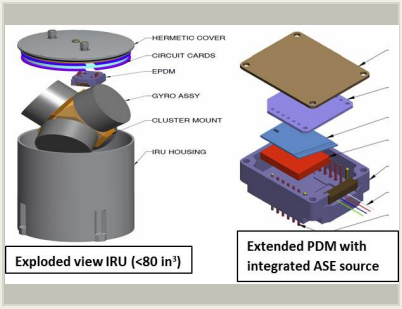
Project Introduction

We propose a new approach for to the design and fabrication of miniaturized Interferometric Fiber Optical Gyroscope (FOG) that enables the production of smaller IRU with enhanced performance. The size and performance limitations of the standard FOG are being reduced due to the utilization of highly integrated approach of all the gyro components. Specifically, the ASE light source and the receivers, splitters and TIA are all incorporated in a small, robust silicon/silica platform using hybrid integration. In addition, the sensor is using an innovative new coil design and high performance miniaturized IOC that results in tenfold reduction of the bias temperature sensitivity compared to the existing FOG products. The combination of these attributes supports a smaller, lower cost, high performance and robust IRU that can serve future NASA mission needs.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Gener8, Inc.	Lead Organization	Industry	Sunnyvale, California
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



Miniaturized High Performance Optical Gyroscope Project Image

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Primary U.S. Work Locations	
California	Maryland

Project Transitions

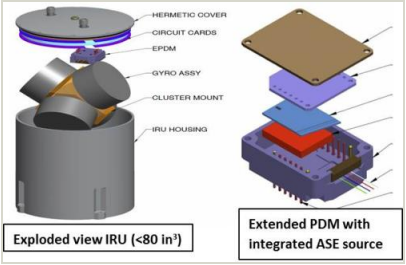
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137515)*

Images



Project Image
Miniaturized High Performance Optical Gyroscope Project Image *(https://techport.nasa.gov/image/130911)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Gener8, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

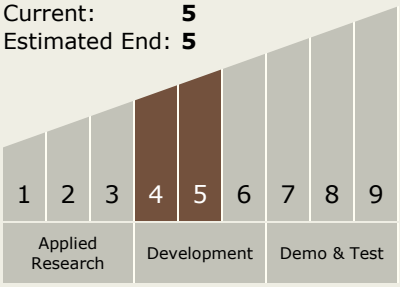
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
William Bischel

Technology Maturity (TRL)

Start: **4**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX17 Guidance, Navigation, and Control (GN&C)
  - TX17.2 Navigation Technologies
    - TX17.2.3 Navigation Sensors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System